ANNA UNIVERSITY COIMBATORE

B.E / B.Tech DEGREE EXAMINATIONS JAN / FEB 2009

REGULATIONS - 2007

SECOND SEMESTER

070280008 / 4IC1201 - ELECTRICAL DRIVES AND CONTROLS

(COMMON TO MECHANICAL, AUTOMOBILE,METALLURGICAL, AERONAUTICAL, MECHATRONICS)

IE : 3 HOURS MAX.MARKS : 100

PART A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1. What are the advantages of electrical drives?
2. State essential part of electrical drives.
3. What are the functions of power modular?
4. What are the main factors which decide the choice of electrical drive for a given application?
5. Draw the steady state load torque speed curves?
6. Write the fundamental torque equation for dynamic electric drives?
7. What are the components of load torque?
8. What is meant by regenerative breaking?
9. State dynamic breaking.
10. Explain why dc series motor is more suited to deal with torque over loads than other dc motors.
11. What factors limit the maximum speeds of field controlled dc motors?
12. What are the advantages of squirrel cage induction motor over dc motor?
13. What is single phasing? Why should it be avoided?

14. What are the drawbacks associated with the operation of induction motor with unbalanced impedances?
15. Explain the rotor resistance starter allows fast start with heating of induction motor.
16. When operating in regenerative breaking the induction motor slip should not be allowed to exceed the breakdown slip. Why?
17. Why a single winding 1Φ induction motor does not have starting torque?
18. What at relative merits & demerits of 1Φ induction motor compared to 3Φ induction motor?
19. State control strategies of choppers.
20. What is meant by UPS also give its applications.

PART – B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

21. a) Explain the four quadrant operation of a motor?

    b) Write about load equalization of motors.

22. a) explain the working principle of 1Φ squirrel cage induction motor with diagram.

    b) Explain the working principle of 3Φ slip ring induction motor with diagram.

23. With help of circuit & waveform explain working principle 3Φ fully controlled rectifier of separately excited motors.
24. Describe the classes of motor duties.
25. Briefly explain the determinates of motor ratings.

26. Draw & explain the ward Leonard drives? Also write its drawbacks and applications.

27. Describe the rotor resistance control.

28. State slip power recovery .explain static scherbias drive for slip power recovery.

*****THE END*****